

CLAIMS

1. Apparatus for detecting the presence of a
workpiece on a machine, comprising:

- 5 (a) a mount for holding the workpiece on the
machine, said mount having a contact surface
designed for contact with the workpiece, an
external surface designed to be free of
10 contact with the workpiece and an internal
passageway extending between said surfaces;
(b) a vacuum pumping and sensing apparatus
connected to the end of said passageway at
the external surface of the mount, said
15 apparatus having a sensor that senses the
pressure in said passageway; and
(c) a control device connected to said vacuum
pumping and sensing apparatus for stopping
the operation of said machine or for taking
20 other appropriate action when said sensor
senses a pressure above a predetermined
maximum pressure.

2. Apparatus for detecting the presence of a
workpiece on a machine according to claim 1 wherein the
25 machine is a stamping press, the workpiece has a tubular
shape, the mount is a mandrel having a substantially
cylindrical surface designed for sliding contact with the
workpiece and the passageway in the mount has a first
portion that extends radially inwardly from said cylindrical
30 surface and a second portion that extends axially of the
mandrel from the radially inward end of said first portion
to an external end of the mandrel that is designed to be
free of contact with the workpiece.

3. Apparatus for detecting the presence of a
workpiece on a machine according to claim 1 wherein the
machine is a mold press, the workpiece is an insert to be
5 applied to the molded product during the molding process,
the mount is a part of the mold press that also holds the
insert in its proper place during the molding process and
the passageway in the mount extends from a surface of the
mount in contact with the insert to an external surface that
10 is designed to be free of contact with the insert.

4. A method of detecting the presence of a
workpiece on a machine mount, comprising the steps of:
15 (a) placing a workpiece on the mount,
(b) drawing a vacuum through a passageway in the
mount,
(c) measuring the pressure in the passageway,
(d) allowing the machine to operate on the
20 workpiece when said pressure is below a
predetermined maximum pressure, and
(e) preventing the machine from operating when
said pressure is above a predetermined
maximum pressure.

25 5. The method of detecting the presence of a
workpiece on a machine mount according to claim 4,
comprising also the step forcing pressurized air through
said passage after said machine has completed its operation
on the workpiece, to clean debris from the passageway
30 surfaces and other surfaces of the mount.